AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Original) An auxiliary agitator for a flotation device of the type having a tank, a primary agitator including a primary rotor adapted to induce radial fluid flow, drive means, and a drive shaft disposed intermediate the drive means and the primary rotor, the auxiliary agitator including:

an auxiliary agitation blade disposed above the primary rotor and adapted, in use, to induce axial fluid flow in a downward direction so as to supplement flow induced in the tank by the primary rotor; and

connecting means for connecting the auxiliary agitation blade to the drive shaft for conjoined rotation with the primary rotor.

2. (Currently Amended) [[An]]The auxiliary agitator according to claim 1, wherein the auxiliary agitation blade defines an angle of incidence that is substantially constant along the length of the blade~~, as in an axial impeller~~.

3. (Currently Amended) [[An]]The auxiliary agitator according to claim 2, wherein the angle of incidence is between 15 degrees and around 75 degrees with respect to the direction of travel of the blade.

4. (Currently Amended) [[An]]The auxiliary agitator according to claim 1, wherein the auxiliary agitation blade defines an angle of incidence that varies along the length of the auxiliary agitation blade~~, as in a propeller~~.

5. (Currently Amended) [[An]]The auxiliary agitator according to claim 1, wherein the pitch of the auxiliary agitation blade is adjustable depending on specific system parameters~~, such as slurry density, slurry viscosity or flow characteristics~~ within the tank.

6. (Currently Amended) [[An]]The auxiliary agitator according to ~~any one of the preceding claims~~claim 1, wherein the auxiliary agitation blade includes a substantially straight leading edge.

7. (Currently Amended) [[An]]The auxiliary agitator according to ~~any one of claims 1 to 5~~claim 1, wherein the leading edge of the auxiliary agitation blade is curved.

8. (Currently Amended) [[An]]The auxiliary agitator according to ~~any one of the preceding claims~~claim 1, wherein the auxiliary agitation blade is releasably connected to the drive shaft to allow its position relative to the primary rotor to be adjusted.

9. (Currently Amended) [[An]]The auxiliary agitator according to ~~any one of the preceding claims~~claim 1, wherein, in use, the auxiliary agitation blade is connected to the drive shaft at around a midheight of the tank.

10. (Currently Amended) [[An]]The auxiliary agitator according to ~~any one of the preceding claims~~claim 1, wherein the connecting means includes a clamp.

11. (Currently Amended) [[An]]The auxiliary agitator according to claim 10, wherein the clamp is formed of two inter-engageable clamping halves.

12. (Currently Amended) [[An]]The auxiliary agitator according to claim 11, wherein the two inter-engageable clamping halves are substantially identical.

13. (Currently Amended) [[An]]The auxiliary agitator according to ~~any one of claims~~claim 10 [[to 12]], wherein inner walls of the clamp together define a generally cylindrical clamping surface.

14. (Currently Amended) [[An]]The auxiliary agitator according to ~~any one of claims~~claim 1 [[to 9]], wherein the connecting means ~~take the form of~~ includes welds or bolts.

15. (Currently Amended) [[An]]The auxiliary agitator according to ~~any one of the preceding claims~~claim 1, including a resilient protective layer coating its exterior surfaces.

16. (Currently Amended) [[An]]The auxiliary agitator according to claim 15, wherein the resilient protective layer is greater than around 3mm thick.

17. (Currently Amended) [[An]]The auxiliary agitator according to ~~claim 14 or~~ claim 15, wherein the resilient protective layer is between around 5mm and around 7mm thick.

18. (Currently Amended) [[An]]The auxiliary agitator according to ~~any one of the preceding claims~~claim 1, including a pair of the auxiliary agitation blades, in use extending radially outwardly from diametrically opposite sides of the shaft, each auxiliary agitation blade having associated connecting means.

19. (Currently Amended) [[An]]The auxiliary agitator according to ~~any one of claims~~ claim 1 [[to 18]], including at least three of the auxiliary agitation blades, in use equally spaced around the perimeter of the drive shaft, each auxiliary agitation blade having associated connecting means.

20. (Currently Amended) [[An]]The auxiliary agitator according to claim 18 or claim 19, wherein, in use, each auxiliary agitation blade intersects the shaft at an angle of incidence of around 45 degrees.

21. (Currently Amended) Agitation means for a flotation device of the type having a tank, a primary agitator including a primary rotor, drive means, and a drive shaft disposed intermediate the drive means and the primary rotor, said agitation means including:

a drive shaft;

a primary rotor adapted to induce radial fluid flow and connected to one end of the drive shaft to form the primary agitator; and

an auxiliary agitator as defined in ~~any one of claims~~claim 1 [[to 20]].

22. (Original) Agitation means according to claim 21, wherein the auxiliary agitation blade is releasably connected to the shaft to allow its position relative to the primary rotor to be adjusted.

23. (Currently Amended) Agitation means according to claim 21 ~~or claim 22~~, being adapted for use in a three phase environment ~~including water, solids and air~~.

24. (Currently Amended) A flotation device including:

a tank for containing slurry incorporating minerals to be extracted;

a feed inlet for admission of slurry into the tank;

agitation means, as defined in ~~any one of the preceding claims~~claim 21 [[to 23]], to agitate the slurry within the tank; and

aeration means to aerate the slurry whereby floatable minerals in suspension form a surface froth.

25. (Currently Amended) [[A]]The flotation device according to claim 24, including a stator surrounding the primary rotor.

26. (Currently Amended) [[A]]The flotation device according to claim 24 ~~or claim 25~~, including a peripheral overflow launder extending around the inside top of the tank for recovering mineral enriched froth from the surface.

27. (Currently Amended) [[A]]The flotation device according to ~~any one of claims~~claim 24 [[to 26]], wherein the aeration means includes an air blower and a fluid conduit for directing air from the blower into the primary rotor.

28. (Currently Amended) [[A]]The flotation device according to claim 27, wherein the fluid conduit includes an axial bore extending through the drive shaft.

29. (Currently Amended) [[A]]The flotation device according to claim 27 ~~or claim 28~~, wherein the fluid conduit is disposed to direct air into the primary rotor from underneath.

30. (Currently Amended) [[A]]The flotation device according to ~~any one of claims~~claim 24 [[to 29]], including a froth deflection cone extending around the drive shaft

adjacent the top of the tank, the smallest diameter of the cone being at its lowermost end nearest the primary rotor.

31. (Currently Amended) [[A]]The flotation device according to claim 30, wherein the froth deflection cone is disposed to deflect froth outwardly toward [[the]]an overflow launder as it migrates toward the surface of the tank.

32. (Currently Amended) [[A]]The flotation device according to claim 30 ~~or claim 31~~, wherein the froth deflection cone is disposed to prevent vortexing at the tank surface.

33. (Cancelled)

34. (Currently Amended) [[A]]The flotation device according to ~~any one of claims~~claim 30 [[to 32]], wherein the auxiliary agitator is located substantially midway between the top of the rotor and the bottom of the froth deflection cone.

35. (Currently Amended) [[A]]The flotation device according to ~~any one of claims~~claim 30 [[to 34]], including a reagent addition tube extending downwardly into the tank through the froth deflection cone.

36. (Currently Amended) [[An]]The auxiliary agitator as defined in ~~any one of the preceding claims~~claim 1, adapted for agitating a slurry containing up to around 55% solids.

37. (Currently Amended) [[An]]The auxiliary agitator as defined ~~in any of the preceding claims~~claim 1, adapted for use in [[a]]the flotation device having a tank with a capacity of at least $50m^3$.

38. (Currently Amended) [[An]]The auxiliary agitator as defined in ~~any one of the preceding claims~~claim 1, wherein the auxiliary agitation blade, in use, acts as an axial impeller to supplement an axial flow induced in the tank by the primary rotor.

39. (Currently Amended) [[An]]The auxiliary agitator as defined in claim [[37]] 38, wherein said axial impeller has a diameter of around 15% to around 35% of the tank diameter.

40. (new) The auxiliary agitator according to claim 5, wherein the specific system parameters include slurry density, slurry viscosity or flow characteristics within the tank.

41. (new) Agitation means according to claim 23, wherein the three phase environment includes water, solids and air.